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EXAMINER	
SUCH, MATTHEW W	

ART UNIT	PAPER NUMBER
2891	

MAIL DATE	DELIVERY MODE
02/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/933,379	MARR, KEN W.	
	Examiner	Art Unit	
	MATTHEW W. SUCH	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *2 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *36,37,41-43,45,46,50-52 and 54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *36,37,41-43,45,46,50-52 and 54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Remarks, filed 2 October 2007, with respect to the rejection(s) of claim(s) 36-37, 41-43, 45-46, 50-52 and 54 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly discovered prior art and/or new interpretation of prior art.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 36 recites the limitation "the second n-well" in Line 4. There is insufficient antecedent basis for this limitation in the claim. The claim is further indefinite because it is unclear as to whether "the second well" is intended to be n-doped or not.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 36-37, 41-43, 45-46 and 50-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamura (`252).

6. Regarding claim 37, Yamamura teaches a method comprising forming a first doped well (Element 130, Fig. 2 or Element 230, Fig. 4) in a first doped region (Element 101, Fig. 2 or Element 201, Fig 4). A first doped plug (Element 122, Fig. 2 or Element 220, Fig. 4) is formed within the first doped well. The first doped plug is formed a first distance from a first boundary of the first doped well ("grey" line added to Figs. 2 and 4 for clarity):

FIG. 2 PRIOR ART

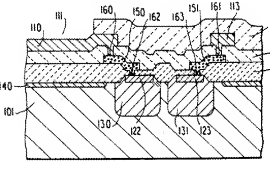
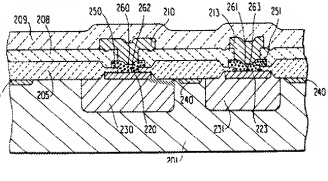


FIG. 4



A second doped plug (Element 123, Fig. 2 or Element 223, Fig. 4) is formed in the first doped region. A LOCOS oxide (Element 105, Fig. 2 or Element 205, Fig. 4) is formed between the first doped plug and the second doped plug (see portions of Elements 105 and 205 which are between Elements 122 and 123, or Elements 220 and 223, respectively).

Regarding the recitation of "selecting a first distance from a first doped plug to a first boundary of the first doped well to provide approximately a desired breakover voltage between

the first doped plug and the first doped region", since the claim does not define what constitutes "approximately a desired breakover voltage", then *any arbitrary breakover voltage* meets that limitation. Therefore, since the methods of Yamamura form a device that has some breakover voltage, that breakover voltage is "desired" for the device that has been built. And since the breakover voltage depends on "a first distance from a first doped plug to a first boundary of the first doped well", that distance has been selected by the user under the conditions which the device is built. In other words, by the very fact that the dimensions of the first doped region and first doped plug exist, then the first distance has been "selected" and has a breakover voltage, which is a "desired" breakover voltage because the claim does not limit what the desired breakover voltage is.

7. Regarding claim 36, Yamamura teaches a second doped well (Element 131, Fig. 2 or Element 231, Fig. 4) formed within the first doped region. The second doped plug is formed a second distance from a second boundary of the second doped well ("grey" line added to Figs. 2 and 4 for clarity):

FIG. 2 PRIOR ART

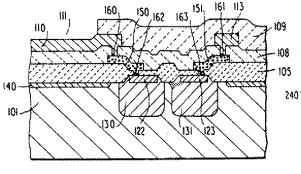
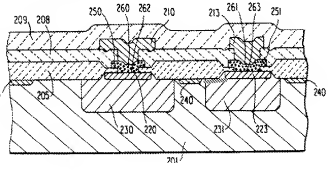


FIG. 4



Regarding the recitation of "a second distance from a boundary of the second n-well, wherein the second distance is selected to provide approximately a desired resistance of a current

path between the first doped plug and the second doped plug", since the claim does not define what constitutes "approximately a desired resistance", then *any arbitrary resistance* meets that limitation. Therefore, since the methods of Yamamura form a device that has some resistance, that resistance is "desired" for the device that has been built. And since the resistance depends on a second distance from a second doped plug to a second boundary of the second doped well, that distance has been selected by the user under the conditions which the device is built. In other words, by the very fact that the dimensions of the second doped well and second doped plug exist, then the second distance has been "selected" and has a resistance, which is a "desired" resistance because the claim does not limit what the desired resistance is.

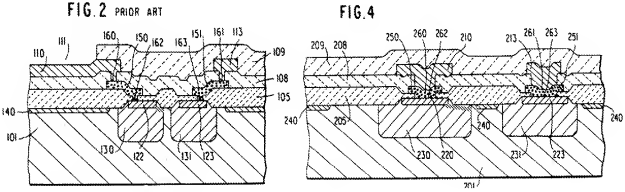
8. Regarding claim 41, Yamamura teaches a conductor layer (Elements 150, 151, Fig. 2 or Elements 260, 261, Fig. 4) above at least a portion of the first doped plug and second doped plug.

9. Regarding claim 42, Yamamura teaches that the first doped region comprises a p-type doped region (Col. 5, Line 52; Col. 6, Lines 26-27).

10. Regarding claim 43, Yamamura teaches that the first doped plug and second doped plug are n-type (Col. 5, Line 56; Col. 6, Lines 31-32 and 59).

11. Regarding claim 46, Yamamura teaches a method comprising forming a first n-well (Element 130, Fig. 2 or Element 230, Fig. 4; Col. 5, Lines 54-55 or Col. 6, Lines 25-26, for example) in a p-type semiconductor substrate (Element 101, Fig. 2 or Element 201, Fig 4; Col. 5,

Line 52 or Col. 6, Lines 26-27). A first n-plug (Element 122, Fig. 2 or Element 220, Fig. 4; Col. 5, Line 56; Col. 6, Lines 31-32 and 59) is formed within the first n-well. The first doped plug is formed a first distance from a first boundary of the first doped well ("grey" line added to Figs. 2 and 4 for clarity):

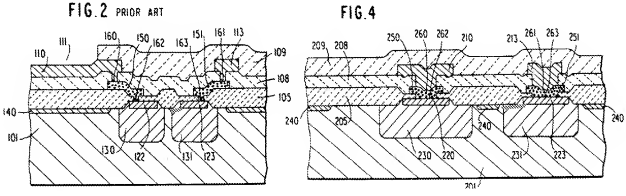


A second n-plug (Element 123, Fig. 2 or Element 223, Fig. 4; Col. 5, Line 56; Col. 6, Lines 31-32 and 59) is formed in the first n-well. A LOCOS oxide (Element 105, Fig. 2 or Element 205, Fig. 4) is formed between the first n-plug and the second n-plug (see portions of Elements 105 and 205 which are between Elements 122 and 123, or Elements 220 and 223, respectively).

Regarding the recitation of "selecting a first distance from a first n-plug to a first boundary of the first n-well to provide approximately a desired breakover voltage between the first n-plug and the first n-well", since the claim does not define what constitutes "approximately a desired breakover voltage", then *any arbitrary breakover voltage* meets that limitation. Therefore, since the methods of Yamamura form a device that has some breakover voltage, that breakover voltage is "desired" for the device that has been built. And since the breakover voltage depends on "a first distance from a first n-plug to a first boundary of the first n-well", that distance has been selected by the user under the conditions which the device is built. In other words, by the very fact that the dimensions of the first doped region and first doped plug

exist, then the first distance has been "selected" and has a breakover voltage, which is a "desired" breakover voltage because the claim does not limit what the desired breakover voltage is.

12. Regarding claim 45, Yamamura teaches a second n-well (Element 131, Fig. 2 or Element 231, Fig. 4; Col. 5, Lines 54-55 or Col. 6, Lines 25-26, for example) formed within the p-type semiconductor substrate. The second n-plug is formed a second distance from a second boundary of the second n-well ("grey" line added to Figs. 2 and 4 for clarity):



Regarding the recitation of "a second distance from a boundary of the second n-well, wherein the second distance is selected to provide approximately a desired resistance of a current path between the first n-plug and the second n-plug", since the claim does not define what constitutes "approximately a desired resistance", then *any arbitrary resistance* meets that limitation. Therefore, since the methods of Yamamura form a device that has some resistance, that resistance is "desired" for the device that has been built. And since the resistance depends on a second distance from a second n-plug to a second boundary of the second n-well, that distance has been selected by the user under the conditions which the device is built. In other words, by the very fact that the dimensions of the second n-well and second n-plug exist, then

the second distance has been "selected" and has a resistance, which is a "desired" resistance because the claim does not limit what the desired resistance is.

13. Regarding claim 50, Yamamura teaches a conductor layer (Elements 150, 151, Fig. 2 or Elements 260, 261, Fig. 4) above at least a portion of the first n-plug and second n-plug.

14. Regarding claim 51, Yamamura teaches a method of forming an integrated circuit device comprising providing a semiconductor substrate with a first doped region formed therein (Element 101, Fig. 2 or Element 201, Fig. 4). A first doped well (Element 130, Fig. 2 or Element 230, Fig. 4) is formed in the first doped region. A first doped plug (Element 122, Fig. 2 or Element 220, Fig. 4) is formed within the first doped well, wherein the first doped plug is formed a first distance from the first boundary of the first doped well. A second doped plug (Element 123, Fig. 2 or Element 223, Fig. 4) within the first doped region. A LOCOS oxide (Element 105, Fig. 2 or Element 205, Fig. 4) is formed between the first doped plug and second doped plug. A bond pad (Element 110, Fig. 2 or Element 210, Fig. 4) is formed on the semiconductor substrate and coupled to the first doped plug. A voltage source node (Element 113, Fig. 2 or Element 213 in Fig. 4) is formed on the semiconductor substrate and coupled to the second doped plug. At least one integrated circuit component (any other Element in Fig. 2 or Fig. 4 that is coupled to the bond pad) is formed on the semiconductor substrate and coupled to the bond pad.

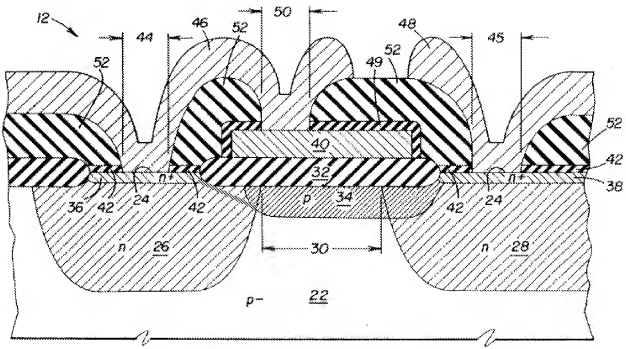
Regarding the recitation of "selecting a first distance from a first n-plug to a first boundary of the first n-well to provide approximately a desired breakover voltage between the first n-plug and the first n-well", since the claim does not define what constitutes "approximately

a desired breakover voltage", then *any arbitrary breakover voltage* meets that limitation. Therefore, since the methods of Yamamura form a device that has some breakover voltage, that breakover voltage is "desired" for the device that has been built. And since the breakover voltage depends on "a first distance from a first n-plug to a first boundary of the first n-well", that distance has been selected by the user under the conditions which the device is built. In other words, by the very fact that the dimensions of the first doped region and first doped plug exist, then the first distance has been "selected" and has a breakover voltage, which is a "desired" breakover voltage because the claim does not limit what the desired breakover voltage is.

15. Regarding claim 52, Yamamura teaches forming a second doped well (Element 131, Fig. 2 or Element 231, Fig. 4) within the first doped region, wherein forming the second doped plug within the first doped region comprises forming the second doped plug within the second doped well.

16. Claims 36-37, 41-43, 45-46 and 50-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Longcor (`465).

17. Regarding claim 37, Longcor teaches a method comprising forming a first doped well (Element 26) in a first doped region (Element 22). A first doped plug (Element 36) is formed within the first doped well. The first doped plug is formed a first distance from a first boundary of the first doped well ("grey" line added to Figs. 3 or 4, at least):

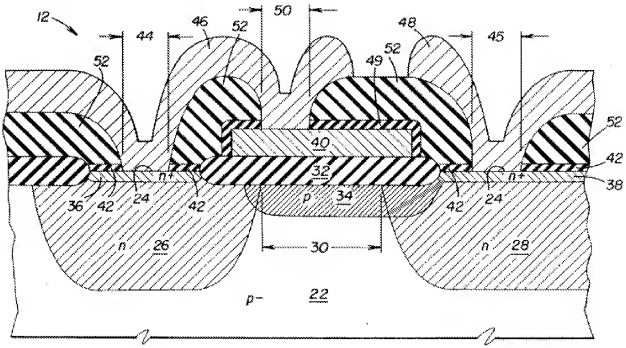


A second doped plug (Element 38) is formed in the first doped region. A LOCOS oxide (Element 32) is formed between the first doped plug and the second doped plug.

Regarding the recitation of "selecting a first distance from a first doped plug to a first boundary of the first doped well to provide approximately a desired breakover voltage between the first doped plug and the first doped region", since the claim does not define what constitutes "approximately a desired breakover voltage", then *any arbitrary breakover voltage* meets that limitation. Therefore, since the methods of Longcor form a device that has some breakover voltage, that breakover voltage is "desired" for the device that has been built. And since the breakover voltage depends on "a first distance from a first doped plug to a first boundary of the first doped well", that distance has been selected by the user under the conditions which the device is built. In other words, by the very fact that the dimensions of the first doped region and first doped plug exist, then the first distance has been "selected" and has a breakover voltage,

which is a "desired" breakover voltage because the claim does not limit what the desired breakover voltage is.

18. Regarding claim 36, Longcor teaches a second doped well (Element 28) formed within the first doped region. The second doped plug is formed a second distance from a second boundary of the second doped well ("grey" line added to Figs. 3 or 4, at least):



Regarding the recitation of "a second distance from a boundary of the second n-well, wherein the second distance is selected to provide approximately a desired resistance of a current path between the first doped plug and the second doped plug", since the claim does not define what constitutes "approximately a desired resistance", then *any arbitrary resistance* meets that limitation. Therefore, since the methods of Longcor form a device that has some resistance, that resistance is "desired" for the device that has been built. And since the resistance depends on a

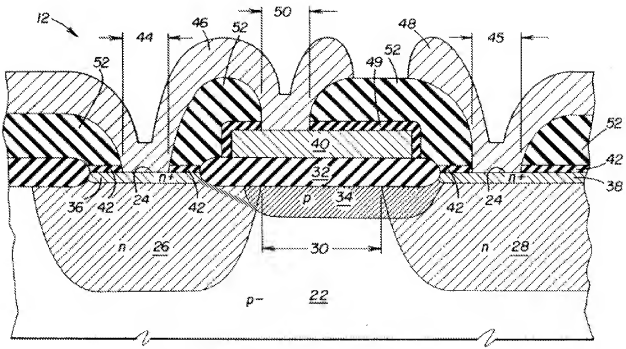
second distance from a second doped plug to a second boundary of the second doped well, that distance has been selected by the user under the conditions which the device is built. In other words, by the very fact that the dimensions of the second doped well and second doped plug exist, then the second distance has been "selected" and has a resistance, which is a "desired" resistance because the claim does not limit what the desired resistance is.

19. Regarding claim 41, Longcor teaches a conductor layer (Elements 46 and 48) above at least a portion of the first doped plug and second doped plug.

20. Regarding claim 42, Longcor teaches that the first doped region comprises a p-type doped region (Fig. 3, for example).

21. Regarding claim 43, Longcor teaches that the first doped plug and second doped plug are n-type (Fig. 3, for example).

22. Regarding claim 46, Longcor teaches a method comprising forming a first n-well (Element 26) in a p-type semiconductor substrate (Element 22). A first n-plug (Element 36) is formed within the first n-well. The first doped plug is formed a first distance from a first boundary of the first doped well ("grey" line added to Figs. 3 or 4, at least):

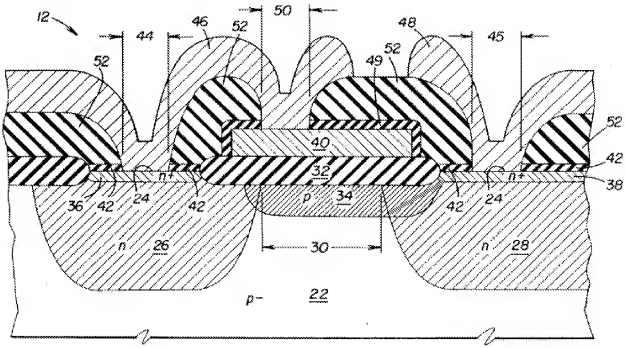


A second n-plug (Element 38) is formed in the first n-well. A LOCOS oxide (Element 32) is formed between the first n-plug and the second n-plug.

Regarding the recitation of "selecting a first distance from a first n-plug to a first boundary of the first n-well to provide approximately a desired breakover voltage between the first n-plug and the first n-well", since the claim does not define what constitutes "approximately a desired breakover voltage", then *any arbitrary breakover voltage* meets that limitation. Therefore, since the methods of Longcor form a device that has some breakover voltage, that breakover voltage is "desired" for the device that has been built. And since the breakover voltage depends on "a first distance from a first n-plug to a first boundary of the first n-well", that distance has been selected by the user under the conditions which the device is built. In other words, by the very fact that the dimensions of the first doped region and first doped plug

exist, then the first distance has been "selected" and has a breakover voltage, which is a "desired" breakover voltage because the claim does not limit what the desired breakover voltage is.

23. Regarding claim 45, Longcor teaches a second n-well (Element 28) formed within the p-type semiconductor substrate. The second n-plug is formed a second distance from a second boundary of the second n-well ("grey" line added to Figs. 3 or 4, at least):



Regarding the recitation of "a second distance from a boundary of the second n-well, wherein the second distance is selected to provide approximately a desired resistance of a current path between the first n-plug and the second n-plug", since the claim does not define what constitutes "approximately a desired resistance", then *any arbitrary resistance* meets that limitation. Therefore, since the methods of Longcor form a device that has some resistance, that resistance is "desired" for the device that has been built. And since the resistance depends on a

second distance from a second n-plug to a second boundary of the second n-well, that distance has been selected by the user under the conditions which the device is built. In other words, by the very fact that the dimensions of the second n-well and second n-plug exist, then the second distance has been "selected" and has a resistance, which is a "desired" resistance because the claim does not limit what the desired resistance is.

24. Regarding claim 50, Longcor teaches a conductor layer (Elements 46 and 48) above at least a portion of the first n-plug and second n-plug.

25. Regarding claim 51, Longcor teaches a method of forming an integrated circuit device comprising providing a semiconductor substrate with a first doped region formed therein (Element 22). A first doped well (Element 26) is formed in the first doped region. A first doped plug (Element 36) is formed within the first doped well, wherein the first doped plug is formed a first distance from the first boundary of the first doped well. A second doped plug (Element 38) within the first doped region. A LOCOS oxide (Element 32) is formed between the first doped plug and second doped plug. A bond pad (Elements 46, Pad) is formed on the semiconductor substrate and coupled to the first doped plug. A voltage source node (Elements 46, Vss) is formed on the semiconductor substrate and coupled to the second doped plug. At least one integrated circuit component (Element CMOS IC, for example) is formed on the semiconductor substrate and coupled to the bond pad.

Regarding the recitation of "selecting a first distance from a first n-plug to a first boundary of the first n-well to provide approximately a desired breakover voltage between the

first n-plug and the first n-well", since the claim does not define what constitutes "approximately a desired breakover voltage", then *any arbitrary breakover voltage* meets that limitation. Therefore, since the methods of Longcor form a device that has some breakover voltage, that breakover voltage is "desired" for the device that has been built. And since the breakover voltage depends on "a first distance from a first n-plug to a first boundary of the first n-well", that distance has been selected by the user under the conditions which the device is built. In other words, by the very fact that the dimensions of the first doped region and first doped plug exist, then the first distance has been "selected" and has a breakover voltage, which is a "desired" breakover voltage because the claim does not limit what the desired breakover voltage is.

26. Regarding claim 52, Longcor teaches forming a second doped well (Element 28) within the first doped region, wherein forming the second doped plug within the first doped region comprises forming the second doped plug within the second doped well.

Claim Rejections - 35 USC § 103

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

28. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamura (`252) in view of Chen (`534).

Yamamura does not teach that the at least one integrated circuit component comprises an anti-fuse network.

Chen teaches coupling ESD devices with an anti-fuse network (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to couple the ESD device of Yamamura with an anti-fuse network, as taught by Chen, in order to protect the anti-fuse network from ESD during fabrication (Chen Abstract, for example).

29. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Longcor (`465) in view of Chen (`534).

Longcor does not teach that the at least one integrated circuit component comprises an anti-fuse network.

Chen teaches coupling ESD devices with an anti-fuse network (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to couple the ESD device of Longcor with an anti-fuse network, as taught by Chen, in order to protect the anti-fuse network from ESD during fabrication (Chen Abstract, for example).

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Gilbert (`841), Miki (`958) and Hsu (`673) each teach ESD configuration methods which may constitute prior art on claimed subject matter.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW W. SUCH whose telephone number is (571)272-8895. The examiner can normally be reached on Monday - Friday 9AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew W. Such
Examiner
Art Unit 2891

/MWS/
2/19/2008

/BRADLEY W BAUMEISTER/

Supervisory Patent Examiner, Art Unit 2891